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DEPARTMENT OF THE ARMY
HEADQUARTERS 20TH ENGINEER BRIGADE
APO San Francisco 96491

Senior Officer Debriefing Report: 20th Engineer
Brigade, 23 July 1967 - 2 November 1968 (U)

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Country: South Vietnam
Debriefing Report by: Brigadier General Curtis/Chapman
Duty Assignment: Commanding General, 20th Engineer Brigade
Inclusive Dates: 23 July 1967 - 2 November 1968
Date of Report: 11 30 Oct 1968

1. GENERAL. Because the AR 1-26 debriefing subjects (causative factors of the insurgency, local government stability actions, and the US role in support of local government, among others) have been treated by officers eminently qualified to contribute to those important matters, ~~my~~ report will attempt, without benefit of the Brigade's staff experts, to state positive, helpful comments resulting from personal experience in the operational environment shared with the stalwart soldiers of the 20th Engineer Brigade.

2. BACKGROUND INFORMATION. In order to provide perspective for what follows, the modus operandi of the 20th Engineer Brigade is summarized:

a. The Brigade's mission was to provide non-divisional engineer support to US and Free World Military Assistance Forces in the III Corps Tactical Zone (CTZ) (11 provinces of jungles, mountains, and paddy land around Saigon) and the IV Corps Tactical Zone (17 provinces in the Mekong Delta). Supported forces included the 1st, 9th, 25th, and 101st US Divisions, several US separate brigades and regiments, the Australian Regiments, the Thai division, several ARVN divisions, and a multitude of combat support and combat service support units.

b. The Brigade's resources consisted of a small brigade headquarters, three small group headquarters, four combat battalions, nine construction battalions, and twenty-nine separate companies and detachments, including such diverse elements as land clearing teams, port construction companies, well-drilling detachments, and high-voltage power distribution teams. Authorized personnel strength varied from about 14,250 to 15,500 Engineer soldiers. A few indicators of authorized material strength: D7E or larger tractors, 274; 5 ton or larger dump trucks, 965; 290M wheeled tractors, 202.

c. The Brigade's functions included execution of directives from The Engineer of US Army Vietnam (USARV) and the CG of US Army Engineer Construction Agency Vietnam (USAECAV) and, on its own authority, response to requests from the supported forces, usually validated by The Engineers of CG, II Field Forces Vietnam (IIFPV) or Senior Advisor (SA), IV CTZ. These directives and

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requests were treated in six priority categories, and Brigade resources were applied thereto scrupulously in the USARV order of priority shown here (see also Tab A):

- Priority 1. Combat support
- Priority 2. Operational support
- Priority 3. Minimum essential requirements (MER)
- Priority 4. Lines of communications (LOC)
- Priority 5. Base construction
- Priority 6. Revolutionary development support (RDS)

3. PLANS AND OPERATIONS.

a. The Vietnamese Counterinsurgency Environment. Under the "normal" or traditional conventional warfare conditions for which we were trained and for which our TOE's were designed, a tactical unit usually is oriented to the "front", the FERRA, with relatively reliable flanking units and secure supply lines and rear areas. There is little comparison between this conventional situation and that we faced in Vietnam, especially dramatized by the Tet and subsequent enemy offensives, where the battlefield had a 360-degree configuration, with objectives throughout the area, with no secure supply lines, with no true rear area at all, and with governmental and military subjurisdictions and forces thoroughly commingled with US forces. This fundamental difference in conditions of "normal" versus current Vietnamese warfare required that each combat, support, and service commander adjust his concepts, operations, organization, personnel, and material to mesh with the realities, unfamiliar though they were.

b. The Engineer Support Concept. To the supporting engineer, there were many profound implications of these unusual conditions. Combat/operational support, normally reserved solely for the tactical unit commander, was justifiably demanded by all commanders, (because every unit was at the "front"), and massive quantities of facilities aiding the operations of all types of units, especially for defense and personnel security, were required. Because of the paucity of Engineer troops as a percentage of supported forces and of the qualitative similarity of "customer" needs throughout the Brigade's territory, we concentrated our resources and managed entirely on an "area" concept (similar to that used in the normal rear area) with each of the three groups assigned a carefully delineated portion of the Brigade area of responsibility (ACR), rather than direct or general support of the tactical commander in which the latter has in effect operational control of his supporting engineers (similar to that used in the normal forward area). Our concept may be described as general support of all USARV and FICMAF in the III and IV Corps Tactical Zones. A rule of thumb evolved that each division tactical area of operations (TAOR) was usually adequately supported by one combat and one construction battalion which could ordinarily accommodate the needs of both the divisional and the non-divisional troops lodged in the TAOR. Thus, instead of only the tactical troops having engineers in direct or general support, all of our supported troops constructively received this close type of support. The employment of this command concept, to which I subscribed fully, enabled the Brigade Commander to adjust his resources among groups to fulfill the requirements of all customers on a ready, responsive, flexible basis. By strenuous adherence to the USARV priority system (par 2c above) and with concurrent close coordination with the supported commanders

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we were able to employ our resources efficiently and at the same time to satisfy our supported commanders, as attested by the many supported commanders' commendations (led by those from CG, IIFV) now in the Brigade's files. (Tab B shows the distribution of the Brigade's effort over 15 months. The influence of the dry season campaigns (Nov - May) and the Tet and subsequent offensives toward our meeting our increased operational support requirements is evident.) Unless the theater percentage of engineers is considerably increased, the area concept should be employed in near-future counterinsurgency war.

c. Relationships with Supported Commanders. I emphasized the necessity for all Engineer Brigade commanders personally to initiate and maintain frequent, informative coordination with the commanders they supported. We found that an effective pairing of coordinators was: CG, IIFV and SA, IV CTZ with CG, 20th Engineer Brigade; division and separate brigade commanders with 20th Brigade group commanders; divisional brigade and base installation coordinators with 20th Brigade battalion commanders. The goal of such coordination was to reach a mutual appreciation of the requirements for current and expected future projects, to inform the customer of the extent of the Brigade's capability to comply with his requests, and to negotiate informal adjustments of customer priorities and Brigade resources applied. The Brigade was also sensitive to its customers' information needs by tailoring our Weekly Status of Projects Report to IIFV's desire, providing a special report on Delta projects to SA, IV CTZ, and preparing a special report on Dong Tam progress for CG, 9th Division. In order to aid the busy supported commander to process his requests for the several types of engineer help (troop combat or operational support, MCA construction, LOC, repairs and utilities, base maintenance) in the most rapid manner, Brigade published the Commanders' Guide to Engineer Troop Support, which was well received (Tab C).

d. Organization and Equipment Changes. As noted in par 3a above, the unusual conditions of the Vietnam stability operation called for adjustments not only in concepts and operation but also in unit organization and equipment.

(1) The System. Let us pass over quickly, but not lightly, the manifest necessity for a system of allowing the Army commander on the ground in a combat area to state his needs for changes in TOE's and have his needs met within a reasonable time period. In October 1967, on a crash basis, Brigade studied and forwarded our requests for modification of our units' TOE's. Although the requests have met with substantive approval at every echelon, as of today we have no authority to requisition personnel or equipment against the TOE changes. I encourage those responsible in their continuing effort to accelerate the improvement of the MTOE system.

(2) Aviation. In Vietnam, the 360 degree battlefield, the insecure environment, and the deteriorated road system necessitated dependence on aircraft to a degree never before experienced by engineer units. The priority need for aircraft was for command and control of Brigade units dispersed throughout the III and IV CTZ, including Phu Quoc Island. (See Tab D) This need was accentuated by the youth and inexperience of our company and platoon commanders at isolated sites. We were habitually over 50% short of captains, and even those available had very little over two years of service.

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These enthusiastic but inexperienced lieutenants and captains needed, and deserved, the mature guidance of their battalion commanders on site. Aviation support was also required for reconnaissance of tactical airfields, LOC's, bridge sites, land clearing areas, sources of engineer materials, and suspected interdiction areas; emergency resupply of rations, ammunition, and critical repair parts; transportation of personnel, supplies, and mail to remote areas. Brigade requirements for aviation support to perform these missions amounted to 117 aircraft days per week. At the best, we actually had available from both Brigade and IIFV sources 48 aircraft days per week; this was only 41% of our requirements and adversely affected mission accomplishment. Our supported tactical commanders were all as generous as possible in allocating their scarce aircraft to the Brigade. They would have been much more effectively supported had our aviation requirements been met. Future TOE's and aviation programming should take full account of the similar stability operations.

(3) Airmobile Capability.

(a) Although only recently organized and with less than 80% of its authorized equipment, our single airmobile company proved to be a valuable asset. The demands for such capability continued to increase. Until a few weeks ago it was used exclusively in the rehabilitation of airfields and fire support bases along the Cambodian border. In October, 1968, a firm competing need was established for its use in preparing airfields and temporary bases in advance engineer support of SA, IV CTZ's dry weather campaign throughout the Mekong Delta, in which roads of adequate capacity do not exist. Although activation of an additional company does not now appear warranted, a means for speedy, temporary augmentation is necessary. Such means may prove out in the pools, as currently planned. The disadvantages of such pools, e.g. difficulty of maintenance, lack of trained operators, lack of familiarity by supervisors with the capabilities and limitations of the equipment, could be overcome at low cost by selective augmentation of each of our light equipment companies:

(b) Experience showed that plans, operations orders, and coordination for our airmobile operations were generally lacking in one important regard: frequently, as the result of our inability to obtain airlift, our equipment was not extracted from an operational location for weeks after completion of the job, thus delaying both its maintenance and its use on other operations. We found it essential to pre-arrange outlift on a high priority basis by obtaining firm commitments before the operation from the supported tactical commander and the air transport commander.

(4) Civilianization. The advantages of the current civilianization program are clear and valid: economy, training the Vietnamese toward self sufficiency, and continuity in units (compare with Korea, where some of our engineer mechanics, supply personnel and others have been employed in the same unit for over 15 years). However in the Vietnamese environment, civilianization of engineer units on a large scale would be both counter-productive and dangerous. A mixed civilian-soldier unit would be far less capable of providing its own security on job sites and of contributing its share to base defense. It would be far less mobile, in the sense that it could not expect to retain its personnel integrity on a move such as one construction battalion recently made from Long Thanh to Dong Tam. It would

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be much less capable of 24 hour operations such as was normal for Brigade soldiers in paving, quarries, and crash horizontal and vertical construction. I suggest that one way of retaining a large measure of unit integrity would be to restrict civilianization to only one company in each civilianized battalion, thus allowing the other companies to retain their complete integrity and usefulness.

(5) Specific Equipment Requirements. While many changes would be helpful (and some were in our submitted MTOE's), I would stress several which impinge on our engineers' ability to carry out the basic Army need to move, shoot, and communicate.

a. Vietnam experience reconfirmed that engineer combat battalions often operate in squad- or platoon-size elements, separated from any other troops, often by long distances. They must be able to defend themselves and to communicate. Because of this typical method of operation the machine guns should be returned to the squads. This would also increase the strength of defensive positions when organized at platoon, company, or battalion level. One of our combat battalions building a new isolated camp recently found that its security position was very weak in machine guns because of the reduction in the latest TO&E to one per platoon.

b. Both because construction battalions were often the first into a new area and because they habitually performed tasks normally assigned to combat battalions (such as mine sweeping, road reconnaissance and interdiction repair, forward airfield repair), they should be augmented with additional weapons (including the M-79) and with additional communications.

c. Engineer battalions in Vietnam were typically spread over a large area and often over-extended their ability to communicate. The AN/GRC 106 proved (in one combat battalion) to be the answer to this problem. Every effort should be made, because of our normally scattered operation, to obtain a higher priority for engineer units in the issue of radios.

e. Tailoring of Engineer Task Forces.

(1) Engineer battalions played a lead role in the expansion of US effort into additional areas of Vietnam. The first US troops to move into an area of the Mekong Delta were elements of an engineer construction battalion, which were to prepare the area to serve as a base for the following tactical units. Far from being employed, as is normal, in the communications zone or rear areas of the field Army, the construction battalions were the pioneering US elements. This also meant that they provided their own materials haul, harbormaster, stevedoring, and other supply activities associated with supply points and depots.

(2) Our engineer battalions frequently provided as much construction material for non-engineer units for "self-help" construction as was used by the battalions themselves. In at least one case, an engineer battalion supported construction effort equivalent to three to four battalions, involving barge and truck convoy shipments which amounted to 500 to 1,000 tons of materials handled

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per day, in addition to an equal tonnage of crushed rock to be off-loaded and stockpiled. This "self-help" also involved our battalions in additional engineering, estimating and requisitioning as well as technical assistance and specialized support, such as concrete mixing and haul, building pad preparation, surveying, and utilities far beyond the battalion's designed capabilities.

(3) With these types of activities in progress within the engineer brigade and group, a flexibility in meeting situations had to be provided beyond that furnished by the individual battalions' TO&E. The assets, equipment, material stockpiles, skills, and even materials haul space organic to the individual battalions and other engineer units were therefore treated as Brigade or group assets, to be assigned and used toward the overall mission. Such operations involved day-to-day active control. Mechanisms of attachment, operational control, support, lateral transfer, and hand receipt - all became tools to meet the immediate task: in effect, tailoring task forces to meet requirements at a site or on an extended project.

f. Tactical Intelligence.

(1) In normal warfare, only a small percentage of engineer units is near enough to the enemy to be much concerned with timely tactical intelligence. In the 360 degree battlefield of Vietnam, all engineer commanders were necessarily concerned, even those based in large camps. In addition to intelligence of the overall "big picture", by which the engineer commander could judge how the enemy's likely courses of action could affect the engineers own plans, he required day to day intelligence in order to size or revise the size of his forces on isolated area projects (e.g. fire support bases, Special Forces camps, forward airfields); to determine whether or not he could work on a certain road or bridge and, if so, whether he could provide his own security or would require the tactical commander's help; to plan for his security levies on base camp born or reaction force elements (e.g. a company at Dau Tieng had 50% of its strength on base security daily for weeks).

(2) We obtained this tactical intelligence by at least daily visits to the tactical commanders' tactical operations centers (TOC) at all echelons of command. For example, Brigade headquarters tied in closely with the IIFV TOC and with the tactical element responsible for the TAOR in which Brigade headquarters at Bien Hoa was located, variously the 173d Infantry Brigade, the 101st Airborne Division, the 11th Armored Cavalry Regiment. Similarly, the groups and battalions tied in with division and brigade TOC's. Such intimate knowledge of the tactical situation should be insisted upon in a future similar war.

g. Land Clearing. This engineer contribution to tactical operations approached the revolutionary in its aid to tactical commanders. New clearing techniques were continually devised, and the requirements of supported commanders appeared insatiable. In the Muoi woods, the Iron Triangle, and other jungle areas adjacent to population centers, the VC until recently enjoyed a sanctuary from which they could intimidate the people with impunity. Now many of these sanctuaries have been eliminated, and in their place new land, cleared and valuable for farming, was provided. The

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pacification benefits were evident: traffic on the roads increased; businesses and farms were developed. Our basic concept of organization — the mechanized infantry (or armored cavalry) — engineer plow team — was proven sound. The MTOE for the land clearing company, when approved, will put our organization on an even sounder footing and will also provide a much needed support base independent of our two parent engineer combat battalions, which found it necessary to augment about 70 soldiers to each team (in addition to the 63 on the team TOE) to provide adequate maintenance, supply and control. From the lessons learned in over 130,000 acres of massive jungle clearing, 20th Engineer Brigade developed a Commander's Guide to Land Clearing (Tab E) which was published as a IIFV regulation. This regulation served to insure suitable employment and smooth operation of the land clearing teams. The esprit and courage of the "Jungle Eaters" on these teams were phenomenal; the soldiers conformed to the finest traditions of military dedication. Experience indicated that 100% tractor replacement should be programmed at 1 to 1½ years, dependent on cutting conditions. Over the long term, a dozer should be developed which is optimized for the enemy harassment, high temperatures, dust, and heavy use always in forward gear which are characteristic of land clearing operations.

h. Training. Despite the practical necessity of employing engineer troops fully on the supported commanders' requirements in accordance with USARV priorities, this concentration essentially on construction, in which our combat engineer battalions constantly engaged, should not be allowed to interfere with training readiness in the basic combat engineer skills. Deliberate periodic training of the battalions in minefield clearing, panel bridging, and especially, float bridging, was found to be mandatory in order to insure a ready capability to respond to the not-infrequent emergencies in these critical combat engineer fields.

1. Management of Engineer Resources.

(1) From the time the Brigade headquarters first arrived in Vietnam, we recognized the need for an information system to assist in making decisions on resource allocation and task assignment. Such a system would ideally have the capabilities to aid us to:

a. Adjust gross distribution of the Brigade's effort to conform to priority of the work.

b. Indicate and aid in adjustment of imbalances in the allocation of Brigade resources to the groups by type of effort, user, and geographical location.

c. Measure the impact of new jobs on directed construction.

d. Provide displays to indicate to our major customers that our available resources were reasonably allocated to their projects.

e. Provide information to justify to USARV our requirements for additional resources in a timely fashion.

(2) The Brigade used the system described below. The work remaining in terms of man-hours on each project was identified in four categories: constructing unit (groups and battalions), location, user, and type construction mission.

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In a like manner, effort expended each month on a project was identified by the same categories. The third set of data developed was the capabilities of each constructing unit (battalion). By employing these three sets of data the objectives of our management system were roughly met.

(3) We planned that these data would be refined in the future to provide more meaningful and additional management tools. Future refinements should include:

a. Computerizing effort expended and unit capabilities in order to compare these data by computer in any of its categories with work remaining.

b. Identifying the types of man-hours on a project which are critical, such as port construction, earthmoving or electrical effort. These man-hours could then be compared as were the other data.

c. Developing a similar system for critical equipment-hours.

d. Instituting a program of command emphasis and training to purify input information.

(4) The need for effective management tools to allocate engineer resources properly will become even more important in the future. The more engineer resources in Vietnam decrease, the more imperative it will become to insure that these resources are committed in the optimum manner to accomplish the US overall mission.

j. Forward Planning. Closely allied to the preceding paragraph was the necessity for imaginative planning on the part of all engineer commanders. The extremely seasonal climatic regime in Vietnam, caused by the regular monsoon changes, especially required careful planning. For example, before the wet season began, we accelerated all our horizontal work, leaving the vertical for the rainy season (e.g., early construction of hardstands and concrete foundations and floors); we replaced and increased the capacity of culverts and bridges; we stockpiled rock and other emergency LOC repair materials; we obtained seed, fertilizer, and planting equipment to encourage wet season growths for erosion control; we trained our leaders to the attitude that construction, even horizontal, can, and will, be accomplished during the rains, even if at reduced efficiency (Tab F is the 159th Group's excellent guide to wet season construction). Similar planning and execution paid off in overcoming the difficulties of the annual dry season.

4. SUPPLY AND MAINTENANCE. These few comments should first be placed in perspective by my opinion that, since my service began in 1941, the Army has never been as well equipped, supplied and supported in its material needs as it was in Vietnam.

a. Third Echelon Maintenance. A study of the deadline/equipment availability experience of combat battalions versus construction battalions indicated the effectiveness of the inclusion of a third echelon maintenance capability at the engineer battalion level. I am convinced of the soundness of this concept, which facilitated response to shifting equipment density

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and enabled a better priority control of maintenance assets.

b. Repair Parts for Non-Standard Equipment. We were equipped with many items of non-standard equipment. These included commercial machinery acquired from EMK-BRW as well as non-standard military items. These were frequently high capacity items and very useful from purely a production point of view. However, non-standard equipment was deadlined much too frequently, and for extended durations, because of the lack of repair parts. Experience proved that the military supply system was unresponsive to requisitions for non-standard repair parts. To obtain full value from commercial and non-standard equipment, a system should be established, and tested for its adequacy, to provide timely repair parts support for such equipment now existing before additional items, such as the pending LOC equipment buy, are issued to our troops.

c. Maintenance Augmentation. Our maintenance requirements increased substantially when units were augmented with extra military or commercial equipment, especially quarrying and crushing equipment. However, no additional mechanics were authorized or available to maintain such equipment. The result was a heavy extra maintenance burden on the unit augmented with the extra equipment. In order to alleviate a specific example of this situation, a quarry detachment which was authorized organic maintenance personnel was requested by MTOE for use at our Vung Tau quarries. There should be provisions for increasing the number of authorized maintenance personnel when a unit is responsible for any significant quantity of commercial equipment.

d. Logistic Support Locations. During my period of command, logistical support elements significantly improved their responsiveness in the delivery of materials to forward areas beyond the Saigon, Long Binh, and Vung Tau depots. More remains to be done, however. For example, a rail-served supply point complex in the Phu Loi area seems an immediate need. It would save back-haul, reduce the growing congestion in the Long Binh area, and provide quicker service to all units in the 1st and 25th Division AOR's.

e. Maintenance. The initial visits of the recently established Brigade Command Maintenance Management Inspection Team produced results which were almost uniformly unsatisfactory, convincing me that we have been guilty of unrealistic and defensive reporting in some cases. I took the first corrective steps and will recommend to my successor that he continue our current strong campaign to keep all our equipment operable.

5. PERSONNEL AND ADMINISTRATION. Again for a perspective, concerning people, our most important asset, I believe that: the USA has never had a finer soldier than we have in Vietnam; he is intelligent, resourceful, unselfish, irrepressible, courageous, and highly motivated. Nor has the United States ever had a finer senior non-commissioned officer corps; it is professional to the core and proudly defends its professionalism by self-police. Never has the United States fought a war with a more professional, dedicated, and able group of the more senior officers, and barring the youth and inexperience which I noted in para 3d(2) above, this applies with but few exceptions to the entire officer corps.

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a. Length of Command Tours. During my fifteen plus months with the Brigade, I was privileged to serve with nine group commanders of our three groups and thirty-eight battalion commanders of our thirteen battalions. This is too many, something over twice too many. I fully support and recommend adherence to the new policy of a standard twelve month command tour, with few exceptions, and those only to provide field experience in higher headquarters, relief for commanders whose jobs have entailed more than a normal share of danger, or flexibility to replace an occasional sub-standard performer. Should the number of qualified in-country applicants for command become considerably larger than the number of vacancies under the twelve month policy, OPO, the agency with full records and responsibility for career management, could provide a list of qualified commanders for assignment in an order of merit for command, thus aiding the USARV assignment decision-maker, who has neither the full records nor the overall long-term responsibility for effective officer career management.

b. Rotational Hump Avoidance. Early last fall I saw how rapidly and completely humps can destroy good units. The policy of requiring that there be no loss larger than 15% in any 30 days during the second year in country is a sound one which should be scrupulously followed, not only in bulk numbers but also in such categories as key officers and NCOs, mechanics, and equipment operators. It should be recognized, however, that the infusion solution of this problem was disruptive for both gaining and losing units. Each man infused was moved from "home" to a new unit where it took some time before he was productive. A regulated replacement flow to eliminate the humps would reduce the problem by half. For example, in the case of a battalion with a May hump, a replacement input in August (without regard to current strength) coupled with a levy out of a May DEROS roster of the same MOS to a non-May hump unit, would be only half as disruptive: only the individual levied out would be affected. By and large, extensions constitute the most effective and painless method of hump correction available to the unit. However, care was required to avoid creating a new hump in later months.

c. Indoctrination of Young NCO's. I found that continual emphasis was required, most effectively through the sergeant major channel, to instill confidence and an active spirit of responsibility in our young NCO's. Liquor, drugs, fights, and firearms accidents in camp were all reduced by such emphasis. I found it essential, and therefore made it mandatory, to have an NCO live in each barracks or tent, in order that he might be immediately responsible for the conduct of the men. My letter to subordinate commanders on this general subject is at Tab G.

d. Awards.

(1) Recognizing that Engineer and other combat support commanders are frequently comparatively unforceful in rewarding their troops with individual and unit awards, the CG's of the Engineer Command and Engineer Troops maintained an active program based on insuring adequate recognition of our valorous and deserving engineer soldiers. In full support of this goal, the 20th Brigade awards program was designed to be fair, consistent, and liberal. To accomplish this, we used three times the TOE strength in our

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Awards Section. Brigade authority was for the Bronze Star and junior awards.

(2) From August 1967 through October 1968, Brigade soldiers received 4478 individual awards, of which 464 were for valor including two Distinguished Service Crosses and 19 Silver Stars. Particularly moving and easy of administration was the surprise, on-the-spot decoration of a soldier in the field in the company of his associates, with the paper work catching up by means of a form furnished by the aide-de-camp to the immediate commander certifying the award of the decoration.

(3) Although administratively burdensome, the unit award is excellent for unit esprit and individual pride, and well worth the effort. As aide to the units in justifying such awards, in addition to the immediate morale boost involved thereby, I initiated the frequent use of the Commander's Unit Commendation (UP par 200c, AR 672-5-1) primarily for combat-connected activities, and a CG's letter of unit commendation for successful but more mundane construction activities. 20th Brigade unit awards are listed at Tab H.

6. LOOKING TO THE FUTURE.

a. Research and Development Requirements. Two developments could change the entire character of the war to the great benefit of ourselves and our allies.

(1) The first and most pervasive would enhance the soldiers ability to move and shoot during the hours of darkness, the enemy's usual movement time. Image intensification scopes of the second or third generation would enable helicopter operation and firing at night; the wafer goggles for use with the soldier's steel pot would enable him to stalk and annihilate the enemy who cannot see in the dark.

(2) The second development is a sure, rapid means of mine clearing, both in fields and along trails and roads. While the current tests of destructible rollers indicate some value, these devices are cumbersome and are not effective against command-detonated or counting mines. Research should be exhaustive and accelerated along the lines of completely inerting the fuse or explosive, such as was under investigation by Dr. Harvelik at Engineer Research and Development Laboratories early in this decade.

(3) See also par 3g for another R&D need.

b. Planning for Peace. I am aware that some planning for peace is underway, and I proffer the following to help. Certain troop units and advisors will remain when the bulk of US forces are withdrawn. To conserve US resources and engineer capabilities, the locations of the permanent bases for these people should be determined now and the construction there should be maximized for long life and low operating cost. Similarly, our current efforts in LOC, probably the greatest engineer contribution to pacification and economic development, should continue to be oriented to those major roads which will be most productive during peacetime. Canals and airfields should be developed in the same pattern. Revolutionary development support activities should be even more strongly emphasized, especially in those areas most likely to become economic centers after the war.

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Priorities should be established in the near future so that the construction of roads, medical facilities, water treatment plants, power distribution systems, and educational facilities in those areas receive an emphasis second only to operational requirements. Engineer machinery suitable for later use by civilian construction companies should be introduced now into the military system. Commercial items such as our Euclid dump trucks, Caterpillar D-9 dozers, and incoming LOC equipment buy could be maintained by civilian contractors with much more ease than TOE items of equipment because repair parts are generally available through commercial channels. Surplus commercial equipment on hand when peace is declared should be made available for purchase by Vietnamese contractors. Surplus military equipment which cannot be feasibly returned to the United States should be used to equip ARVN engineer units with newer and better construction equipment. Installations which are vacated by United States forces should be turned over to ARVN forces for their use or utilized as civilian refugee and rehabilitation centers. We should confer at an early date with the Government of the Republic of Vietnam to enable them to plan for the use of facilities which we would vacate. US troop units should increase our efforts to hire and train Vietnamese skilled workers and laborers wherever possible, as well as Vietnamese foremen and supervisors. Prime areas of interest should be prefab yards, quarrying and crusher operations, asphalt production, concrete batch plants, vertical construction projects, road maintenance and paving operations, precast concrete yards, concrete block plants, motor pool maintenance, and supply activities.

7. COMMAND POLICY. One of my goals was to aid the further development of the splendid officers who commanded our groups by strictly employing the honored command system of telling them what to do but not how to do it. Resourceful self reliance was demonstrated by each, especially under the conditions of Tet and subsequent communist offensives, when groups and battalions rose to the difficult occasion resulting from our almost total inability to communicate and move about. I did attempt to guide them toward what I call "the totality of command", insuring that they applied themselves not only to the payoff item, operations, but also in a conscious way and with an appropriate investment of their personal time to the contributing personnel, morale, supply, maintenance, etc., factors which must be successfully accomplished and balanced if the payoff is to be achieved. This they did. Another of my personal beliefs, which I found to work well in Vietnam, is what I call "the sanctity of command". This policy demands a constantly open door and personal, "eyeball" contact studiously encouraged by the senior commander with the junior; it brooks no interposition between the two commanders by any element of either commander's staff, including even the Deputy or Chief of Staff. Total responsibility resides solely in the commanders in the chain of command; the command channel must be carefully preserved, easy to use, free of interference and, of course, never by-passed.

CONFIDENTIAL

CONFIDENTIAL

8. EMVOI. Command of US citizens in a war zone is the highest privilege the country can entrust to a professional soldier. My commanders and I have striven to be found deserving of that trust. I am proud of the accomplishments of the soldiers of the 20th Engineer Brigade. I am proud to have been one of them in their ready, responsive, resourceful, reliable support to the US Army in Vietnam.

Curtis Chapman

CURTIS CHAPMAN
Brigadier General, USA
Commanding

I N D E X

TABS:

- A. 20th Engineer Brigade Regulation 415-15 .**
- B. Distribution of Brigade Effort**
- C. Commander's Guide to Engineer Troop Support**
- D. Dispersal of Brigade Resources**
- E. Commander's Guide to Land Clearing**
- ~~F. Monsoon Manual~~ - wd HQ DA**
- G. Indoctrination of Young Noncommissioned Officers**
- H. Unit Awards**

DEPARTMENT OF THE ARMY
HEADQUARTERS 20TH ENGINEER BRIGADE
APO San Francisco 96191

REGULATION
NUMBER 415-15

5 September 1968

CONSTRUCTION

Categories, Priorities, and Control of Engineer Effort

1. PURPOSE: To establish categories and priorities of engineer support and to prescribe procedures for allocation of engineer effort and resources.

2. SCOPE: The provisions of this regulation are applicable to the Brigade Headquarters and all subordinate units of the 20th Engineer Brigade.

3. OBJECTIVES:

a. To insure rapid and effective response to missions and requests for engineer effort throughout the Brigade's Area of Responsibility.

b. To insure proper allocation of engineer effort and resources to assigned tasks on the basis of established priorities.

4. CATEGORIES: The categories of engineer effort are explained below in order of priority.

a. Combat Support: (Priority 1). Engineer operations in support of tactical operations in progress to assist maneuver elements, combat support elements and combat service support elements. This type mission is normally of short duration; requires minimal, if any, engineering design; and is such that the success of a tactical operation would be jeopardized if the task is not accomplished expeditiously. Immediate response is the critical element in combat support missions.

b. Operational Support: (Priority 2). Urgently required engineer support of combat forces, combat support forces or combat service support forces clearly related to current or impending tactical operations. This type mission is such that the primary operational or support mission will be seriously and immediately handicapped if the task is not accomplished expeditiously. Tasks directly related to base camp defense may also be accomplished as operational support. Operational support tasks normally require only limited engineering design and are accomplished by troop labor. As in combat support missions, prompt response is a critical element of operational support missions, although time should generally be sufficient to permit command review of the requirement.

Tab A

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c. Minimum Essential Requirements: (Priority 3). Requirements, which, when fulfilled, allow an incoming unit to occupy its new home station. Minimum Essential Requirements consist of concrete slabs for messhalls, grading and stabilizing areas for tentage, stabilized parking areas for equipment and aircraft, minimum open storage areas, area drainage, field showers and burn-out latrines, access and main area roads, and aircraft revetments.

d. Lines of Communication: (Priority 4). The LOC Program is the deliberate restoration to MRCV Standards and maintenance of national and interprovincial highways, other provincial routes, and railroads which are required for the support of tactical operations. It is an integrated program involving the combined efforts of Ministry of Public Works (MPW), Vietnam National Railroad System (VNRS), U.S. Agency for International Development (US/ID), Army Republic of Vietnam (ARVN), Naval Forces, Vietnam (NAVFORV), Military Assistance Command, Vietnam (MACV), and U.S. Army, Vietnam (US/ARV). The general objectives of the deliberate LOC Restoration Program in RVN are application of engineer troop and contractor effort to accomplish the following:

- (1) Facilitate large scale operations by restoring main supply routes (MSR).
- (2) Provide heavy traffic MSR around ports, depot complexes and major installations.
- (3) By-pass metropolitan areas.
- (4) Restore local routes to sustain military traffic.
- (5) Reduce dependence on air LOC's, thereby freeing aircraft for direct support of tactical operations.

e. Base Construction: (Priority 5). Base construction is provided for under two programs: Military Construction Army (MCA) and minor construction. MCA for the RVN is provided for in US/ARV Regulation 415-1 and is the primary vehicle for base construction. Minor construction includes those projects for alteration, conversion, or construction of real property facilities using O&M funds. Minor construction projects are normally accomplished by the Installation Engineer using resources under his control. Those projects beyond the capability of the Installation Engineer may be accomplished by engineer troop labor.

f. Revolutionary Development Support: (Priority 6). Coordinated military and civil actions designed to liberate the people from Viet Cong control, restore public security, initiate political, social and economic development, extend effective Government of Vietnam (GVN) authority and win the willing support of the Vietnamese people.

5. PROCEDURES:

a. Combat Support: Normally requested from the nearest engineer unit. If the requested combat support is beyond the capabilities or authority of the engineer unit receiving the request it will immediately be referred to the next higher headquarters for assistance.

b. Operational Support: Normally requested through command channels to II Field Force, equivalent commands, or Headquarters, USARV. It may be requested at lower levels of command if urgency so dictates. Field Force and equivalent commands will request operational support directly from this headquarters. All requests for operational support will be reviewed and validated by this headquarters.

c. Minimum Essential Requirements (MER): Requests will be forwarded to this headquarters for validation and issuance of a directive for construction.

d. Lines of Communications: LOC maintenance and restoration are governed by LOC directives issued by this headquarters.

(1) General road directives (GRD's) issued to each group provide authority for maintenance of specified or assigned routes in each group's AOR, directed by this headquarters, that can be supported by O&M funds. There is a \$200,000 DA restriction on individual projects chargeable under O&M to the GRD's.

(2) Deliberate LOC restoration, construction of bridges, and reconstruction of destroyed bridges are governed by individual LOC projects issued by this headquarters. These projects are O&M funded, or if new construction they are MCA funded, and will not be accomplished under the provisions of the GRD's.

e. Base Construction: Projects that are funded under MCA and accomplished by troops will be directed by USARV through this headquarters. Project approval, establishment of construction priorities and determination of whether troop or contract labor will be utilized for construction will be accomplished by the USARV Engineer. This determination is based on availability of funds and troop effort. Approved minor construction projects that do not exceed \$10,000 in funded costs may be accepted and directed by this headquarters. All requests for minor construction utilizing brigade troops will be referred to this headquarters for validation and direction under the brigade's general construction directive.

f. Revolutionary Development Support (RDS): RDS projects programmed are forwarded through DEPCORDS of II FFV to HQ, USARV, ATTN: AVHGE, for approval. Validated projects will be directed by USARV through this headquarters. Civic action projects requiring minimal support may continue to be undertaken by Engineer Group units without referral to this headquarters provided that they do not interfere with other programmed requirements and they are coordinated with the Province and District Senior Advisors.

6. AUTHORITY:

a. The Commanding General, 20th Engineer Brigade, reserves the following authority for all construction by Brigade troops:

(1) Validation and directive authority for operational support missions.

(2) Approval and directive authority for all MER construction.

(3) Directive authority for all minor construction projects in support of District/Installation Engineer.

b. Approval and directive authority for combat support missions is hereby delegated to the Commanding Officer, 34th, 79th and 159th Engineer Groups. This authority may be sub-delegated to the level necessary to insure immediate response to tactical requirements.

c. Requests for engineer support over which CG, 20th Engineer Brigade has reserved authority will be expeditiously forwarded to this headquarters, ATTN: AVBI-CHOPS, for review, validation and issuance of directives, as appropriate.

d. Unresolved requests for engineer support, whether for category, priority or validity will be referred to this headquarters, ATTN: AVBI-CHOPS for determination.

7. REPORTS:

a. All reports required by current regulations remain in effect.

b. A copy of each combat support directive issued by any Brigade unit will be forwarded to this headquarters, ATTN: AVBI-OS for information.

8. IMPLEMENTATION: This regulation is effective upon receipt.

9. REFERENCES:

a. USARV Regulation 220-10.

b. USARV Regulation 415-1.


c. USARV Regulation 420-4.

d. 20th EB Regulation 415-7.

(AVBI-COS)

FOR THE COMMANDER:

OFFICIAL:


RICHARD E. TAYLOR
1LT, AGC
Assistant Adjutant

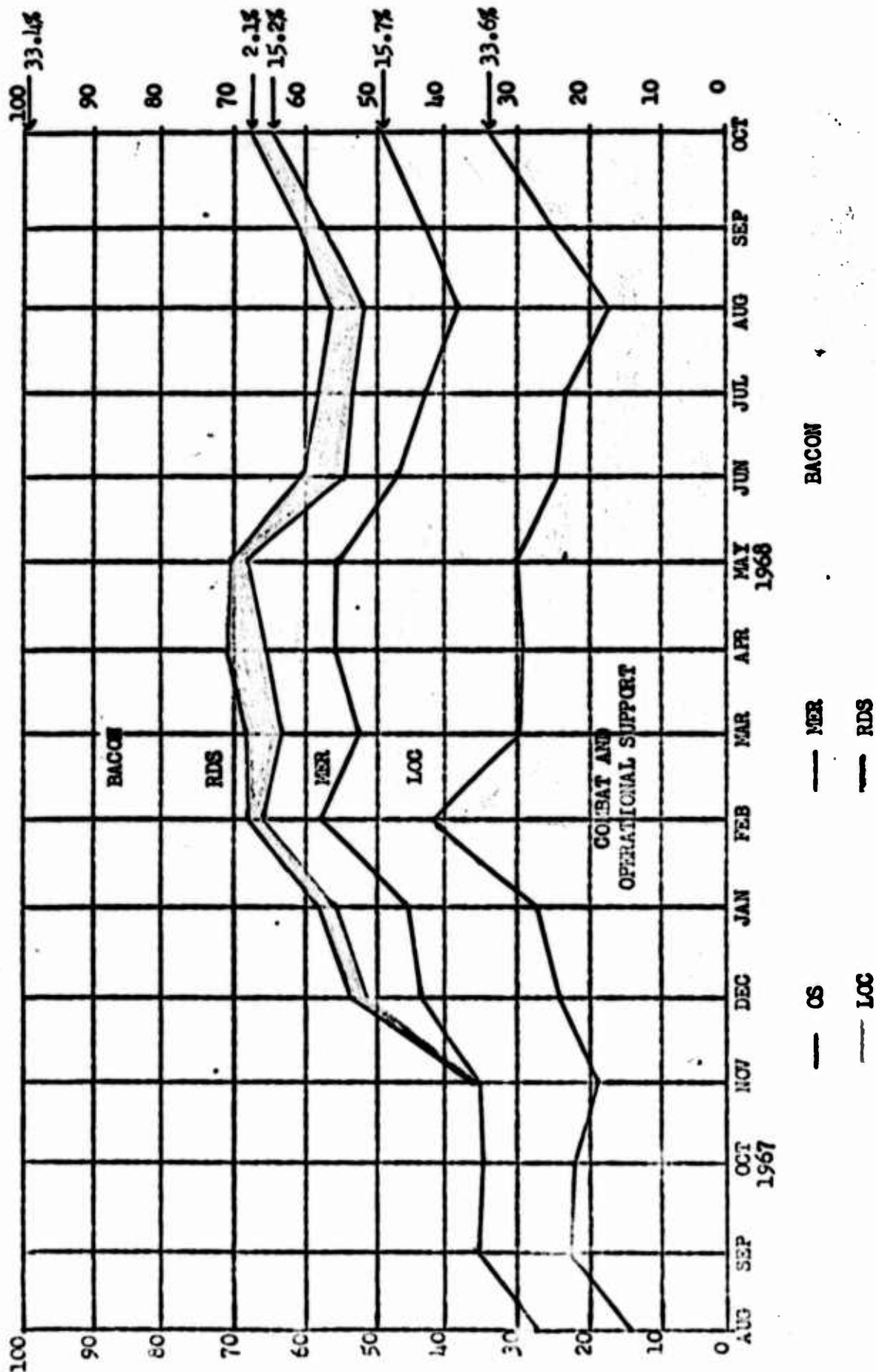
J. R. BUNTIN JR.
Major, AGC
Adjutant

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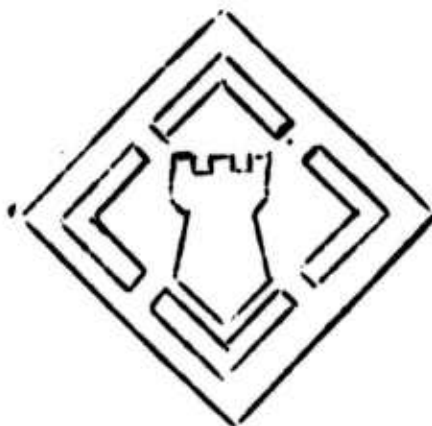
TAB B

20

COMMANDER'S GUIDE
to

ENGINEER TROOP
SUPPORT

20TH ENGINEER BRIGADE



OCT. 1988

26 October 1968

This guide, prepared for all of our supported unit commanders, our "customers" and prospective customers, is intended to assist you in requesting engineer support by explaining the resources of the 20th Engineer Brigade, the categories and priorities of USARV engineer support, and the procedures for obtaining our support.

This guide is arranged into areas explaining specific items on types of support and their priorities and general information which expands on procedures for requesting the various types of engineer support and action for construction or maintenance of facilities.

We hope that this guide will prove useful to you in the accomplishment of our common mission here in Vietnam. We of the 20th Engineer Brigade look forward to working with you to that end.



CURTIS CHAPMAN
BG, USA
Commanding

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I. CATEGORIES OF U.S. ARMY ENGINEER SUPPORT - - The categories of engineer support, priorities and procedures for requesting support are listed below:

A. Combat Support (Priority 1)

1. Definition: Urgently required engineer support of tactical operations in progress to assist maneuver elements, combat support elements, and combat service support elements. This type of mission is normally of short duration; requires minimal, if any, engineering design; and is such that the success of a tactical operation would be jeopardized if the tasks were not accomplished expeditiously. Immediate response is the critical element in combat support missions.

2. Typical Mission: Land clearing, tactical bridge emplacement, hasty heliports/airfields, demolitions, and emergency road repair.

3. Procedures: Combat support is normally requested through the chain of command to II FFORCEV or SA, IV Corps. In emergencies, it can be requested directly from the nearest engineer unit of the Brigade.

B. Operational Support (Priority 2)

1. Definition: Engineer support of combat forces, combat support forces, or combat service support forces clearly related to current or impending tactical operations. This type mission is such that the primary operational or support mission will be seriously and immediately handicapped if the task is not accomplished expeditiously. Tasks directly related to base camp defense may also be accomplished as operational support. Operational support tasks normally require only limited engineering design and are accomplished by troop labor. As in combat missions, prompt response is a critical element of operational support missions, although time should generally be sufficient to permit command review of the requirement.

2. Typical Missions: Bridge protective devices, fire support bases, remote airfield maintenance and upgrade, repair of LOC interdictions and re-entments for critical facilities.

3. Procedures: Operational support is requested in writing through command channels to HQ U.S. ARV; HQ, II Field Force and the Senior Advisor, IV Corps who make requests for operational support directly to the 20th Engineer Brigade.

C. Minimum Essential Requirements (Priority 3)

1. Definition: Requirements, which, when fulfilled, allow an incoming or relocating unit to occupy its new home station. Minimum

Essential Requirements (MER) consist of concrete slabs for messhalls, grading and stabilizing of areas for tentage, stabilized parking areas for equipment and aircraft, minimum open storage areas, area drainage, field showers and burn-out latrines and access and main area roads. Aircraft revetments for incoming aircraft will be constructed in conjunction with MER.

2. Typical Missions: MER construction for all incoming or relocating units from division to detachment size.

3. Procedures: Requests for MER will be forwarded in accordance with USARV Reg 415-1 by the incoming or relocating unit, or the unit's sponsor, through its parent brigade level or equivalent headquarters (to preclude unnecessary construction should the unit location change at the last minute), to the 20th Engineer Brigade for issuance of a directive for construction. See inclosure 3 for the information to be included in your MER request.

a. MER facilities must be constructed on land controlled by the US Government. If this is not the case the requesting unit must apply for real estate in accordance with USARV Regulation 405-1.

b. If a user desires to upgrade MER facilities, the required information must be submitted on a DA Form 2701 to the local installation engineer per USARV Regulation 420-4 or on a DA Form 1391 through command channels per USARV Regulation 415-1.

c. Requests for support which exceed the criteria of MER as defined in USARV Reg 415-1 cannot be accomplished by 20th Engineer Brigade units unless so directed by USARV.

d. Adequate lead time is essential to quick response and timely completion of MER. Units should submit request for MER at least 45 days in advance, if possible, to allow the engineers sufficient time to plan, schedule, and coordinate the construction.

e. Request should be marked with appropriate security classification.

D. Lines of Communication (priority 4)

1. Definition: The LOC Program is the deliberate restoration to MACV standards and maintenance of national and interprovincial highways, other provincial routes, and railroads which are required for the support of tactical operations. The objectives of the deliberate LOC Restoration Program in RVN are to:

a. Facilitate large scale operations by restoring main supply routes (M.R.).

b. Provide a heavy traffic ICR around ports, depot complexes and major installations.

c. By-pass metropolitan areas.

d. Restore local routes to sustain military traffic.

e. Reduce dependence on air LOC's, thereby freeing aircraft for direct support of tactical operations.

2. Typical Mission: Construction of the Saigon Bypass to include the Phu Cuong Bridge.

3. Procedures: A FY Program is developed by 20th Engineer Brigade using priorities established by MACV.

a. LOC Maintenance will be performed when it is determined that the maintenance is beyond the capabilities of MPW (Minister of Public Works) or the tactical commander (US/ARVN) in whose TAOR the road is located.

b. Maintenance of access roads and cantonment roads is the responsibility of the post engineer and will be accomplished by the local PA&E organization. The 20th Engineer Brigade does not have the responsibility or authority to maintain these roads, unless the effort required is beyond the capability of PA&E.

E. Base Construction (Priority 5)

1. Definition: Base Development efforts in Vietnam are justified, approved and funded under a modified MCA Program. This is a formal system requiring advance programming, detailed justifications, review by local Base Planning Boards, and issuance of specific construction directives to accomplish distinct work items. To supplement the MCA system, the Minor Construction Program is available to construct those urgently required items planned under the same criteria as above. These projects are O&MA funded and may not exceed \$25,000 funded costs in Vietnam.

2. Typical Missions: Maintenance hangers, water towers, service clubs, port facilities, POL storage, power distribution systems, logistical depots, signal facilities and medical facilities.

3. Procedures:

a. MCA

(1) Requirements should be defined in terms of specific scope for each category of work. USARV Regulation 415-1 and AR 415-15

provide guidance for completing the DD Form 1391, Military Construction Line Item Data.

(2) In coordination with the Base Development Officer, the 1391 form is prepared using criteria contained in MACDC Construction Bulletin 415-2-40 and the USARV standards of construction in USARV Regulation 415-1. The DD Form 1391 is submitted to the local Base Development Board for approval. Following this action, the request is submitted through command channels to USARV for approval and funding action.

(3) Base Development Boards determine priorities of construction at each installation once directives have been issued to engineer troops or contractor.

b. MINOR CONSTRUCTION

(1) Urgently required facilities may be constructed under the procedures of USARV Regulation 420-4. The item must, however, be on the Base Development Plan or added to it by board action.

(2) In coordination with the Real Property Maintenance Facility Manager (Installation Engineer), a DA Form 2701 is prepared stating the requirement and urgency for this construction. Based upon the Base Development Board's priority and the availability of funds, the item will be constructed by USARV (PA&E or a troop utility detachment) or the 20th Engineer Brigade.

F. Revolutionary Development Support (Priority 6)

1. Definition: Coordinated military and civic actions designed to liberate the Vietnamese people from Viet Cong control, restore public security, initiate political, social and economic development, extend effective Government of Vietnam (GVN) authority, and win the willing support of the Vietnamese people.

2. Typical Missions: Construction of an earth-filled dam, market places, teachers homes, maternity dispensaries, schools and warehouses.

3. Procedures: Programmed RDC Projects are forwarded through DEPCORDS of II FFV to USARV for approval. Validated requests are directed through channels to the 20th Engineer Brigade. Civic action support may be undertaken by any engineer unit providing they have effort available. Assistance for civic action may be requested from the nearest engineer unit and will be undertaken only on an "as available" basis. Since civic action is not a funded program, all materials used must be either donated or obtained from salvage.

II. DIRECTIVES:

A. Upon receipt of a project directive for base construction,

operational support, or a request for MER, the 20th Engineer Brigade will in turn send a written directive to the appropriate engineer group thereby assigning the task for construction. An information copy of this directive will be sent to the customer.

B. When the constructing unit receives its directive, it will contact the user or requestor to determine details of the project, work out siting arrangements, and indicate to the user the estimated schedule of construction. This liaison will remain in effect until the project is complete and is accepted by the user.

III. BOD and EDC

A. Beneficial Occupancy Date (BOD) is the estimated date on which the using unit will be able to occupy the facility, if they so desire, prior to the actual completion date. In determining the BOD, coordination will be effected between the user and the constructing unit to ensure a complete understanding by both parties as to what facilities or components must be completed prior to the BOD. The user should understand that use of the facility prior to actual completion (BOD) normally causes the actual completion date to be extended somewhat due to congested working conditions and other construction variables.

B. Estimated Date of Completion (EDC) is the estimated date on which the facility will be entirely completed and turned over to the user. A joint inspection will be conducted with representatives from the constructing unit and user.

IV. RESOURCES OF THE 20TH ENGINEER BRIGADE

A. The 20th Engineer Brigade is a major command of USARV responsible for US non-divisional engineer support in the III and IV CTZ, an area of over 25,000 square miles. The Brigade's strength is approximately 14,500 military personnel and 5,000 civilians. To accomplish our missions we are organized into 3 engineer groups, the 34th, 79th and 159th, each having 4 to 5 engineer combat or construction battalions. In addition, numerous separate companies are assigned to each group to provide backup in special construction equipment and skills, panel and float bridging, and hauling capabilities. Small detachments, which vary from 2 to 30 men, are organic to each group to furnish well drilling, concrete production, power distribution, rock crushing, and asphalt production services. An organizational chart for the 20th Engineer Brigade is shown as inclosure 2.

B. A combat engineer battalion is composed of approximately 800 officers and men organized into a headquarters and headquarters company and 4 line companies. The organization, HQS structure, and TOE equipment enable the combat battalion to provide all types of combat engineer support. Construction projects are also undertaken by combat engineer

battalions, but unless the unit is augmented by additional heavy equipment or construction personnel their capabilities are limited in this area. Three of the four combat engineer battalions in the 20th Engineer Brigade have either a light equipment or construction support company attached.

C. An engineer construction battalion is larger (about 900 men) than a combat battalion and is organized into a headquarters and headquarters company, an equipment and maintenance company, and three (3) construction companies. The organization, MOS structure and equipment give this battalion a balanced capability for horizontal (earthwork) and vertical (building) construction to include plumbing and electrical work. Construction battalions are also called upon and have the capability to provide combat support to tactical units in an emergency. This normally requires an augmentation of additional radios, mine detectors, weapons and other specialized equipment.

D. Organizations supported by the 20th Engineer Brigade include all FMARF and ARVN combat, combat support and combat service support units within the III and IV Corps Tactical Zone.

V. SUMMARY

A. In the past many misunderstandings have evolved, especially in base construction tasks, when the construction unit stops work and moves to another project. In most cases the stoppage or delay is due to higher priority missions being assigned which take precedence over base construction. The constructing unit will contact the user in each case to insure that he understands the reason for the delay.

B. The 20th Engineer Brigade sincerely hopes that this informational guide will assist our customers in understanding our organization, priorities, types of work, and the coordination necessary to insure that a usable facility is completed or that a support mission is properly accomplished. If at any time questions arise the customer should immediately contact the nearest engineer unit. They will satisfy your question if they are involved, or will contact higher headquarters to get an answer.

- 3 Incl
- 1 - References
- 2 - Organizational Chart
- 3 - IER Request

REFERENCES

- a. AR 415-15, CONSTRUCTION, MCA Program Development, dated 22 March 1962.
- b. AR 415-28, CONSTRUCTION, Department of the Army Facility Classes and Construction Categories, dated 17 October 1967.
- c. MACV Directive 405-1, REAL ESTATE, Acquisition, Allocation, Reporting and Disposal of Real Estate within the Republic of Vietnam by US Military Forces, dated 3 November 1966.
- d. MACV Construction Bulletin 415-2-10, CRITERIA FOR MILITARY CONSTRUCTION, dated 14 December 1966.
- e. USARV Regulation 405-1, REAL ESTATE, Acquisition, Utilization, Recording, Reporting and Disposal of Real Estate, dated 13 May 1968.
- f. USARV Regulation 405-3, REAL ESTATE, Base Development/Master Planning, dated 20 May 1968.
- g. USARV Regulation 415-1, CONSTRUCTION, Standards, Procedures and Control of Construction Resources, dated 4 April 1968.
- h. USARV Regulation 420-4, REPAIRS AND UTILITIES, Minor Construction - Approval Authority, Programming and Review of R&U Projects (Revised edition in printing)
- i. Users Manual For Customers of the U.S. Army Engineer Construction Agency Vietnam, undated.

ORGANIZATIONAL CHART

THE TERRAIN

MD MAP DETACHMENT



DEPARTMENT OF THE ARMY
REQUESTING UNIT
APO 96XXX

SUBJECT: Request for IER Support for _____

THRU: HQ
Brigade or Equivalent Level Parent Unit

TO: HQ
20th Engineer Brigade
ATTN: AVBI-COS
APO 96491

1. References:

- a. As applicable.
- b. USARV Regulation 415-1.
- c. USARV Regulation 220-10.
- d. USARV Message, AVHGD-PO 68208, subject: Base Camp Consolidation dated 5 September 1968.
- e. USARV Letter, AVHEN-MO, subject: Engineer Effort and Resources, dated 21 August 1968.

2. AUTHORITY: HQ directing move, message cite, letter, etc.

3. LOCATION:

- a. IER support is required at _____.
- b. Site was approved by XXX Base Development Planning Board on _____.
- c. Area has (not) been previously occupied by a US unit.
- d. If land is not presently controlled by the US Government a request for real estate was submitted to _____ on _____.

Incl 3

10

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(Office Symbol)

SUBJECT: Request for MGR Support for _____

4. SCOPE OF WORK REQUIRED: (Include as appropriate)

- a. Concrete slabs for _____ messhalls.
- b. Field showers and burn-out latrines for _____ personnel.
- c. Parking hardstands for _____ vehicles and _____ aircraft
(To include number and type of aircraft revetments required)
- d. Open storage area.*
- e. Access and main area roads.*
- f. Grading and stabilization necessary to accommodate the erection
of _____ tents.
- g. General descriptive statement as to the condition of the site,
i.e., wooded, sandy, poorly drained etc. if available.

5. SUPPLEMENTAL DATA:

- a. ETA of unit and desired occupancy date (if different).
- b. Contact officer (name, unit telephone number of person whom
constructing unit is to contact for specific information and coordination).
- c. Other clarifying or amplifying information.

FOR THE COMMANDER:

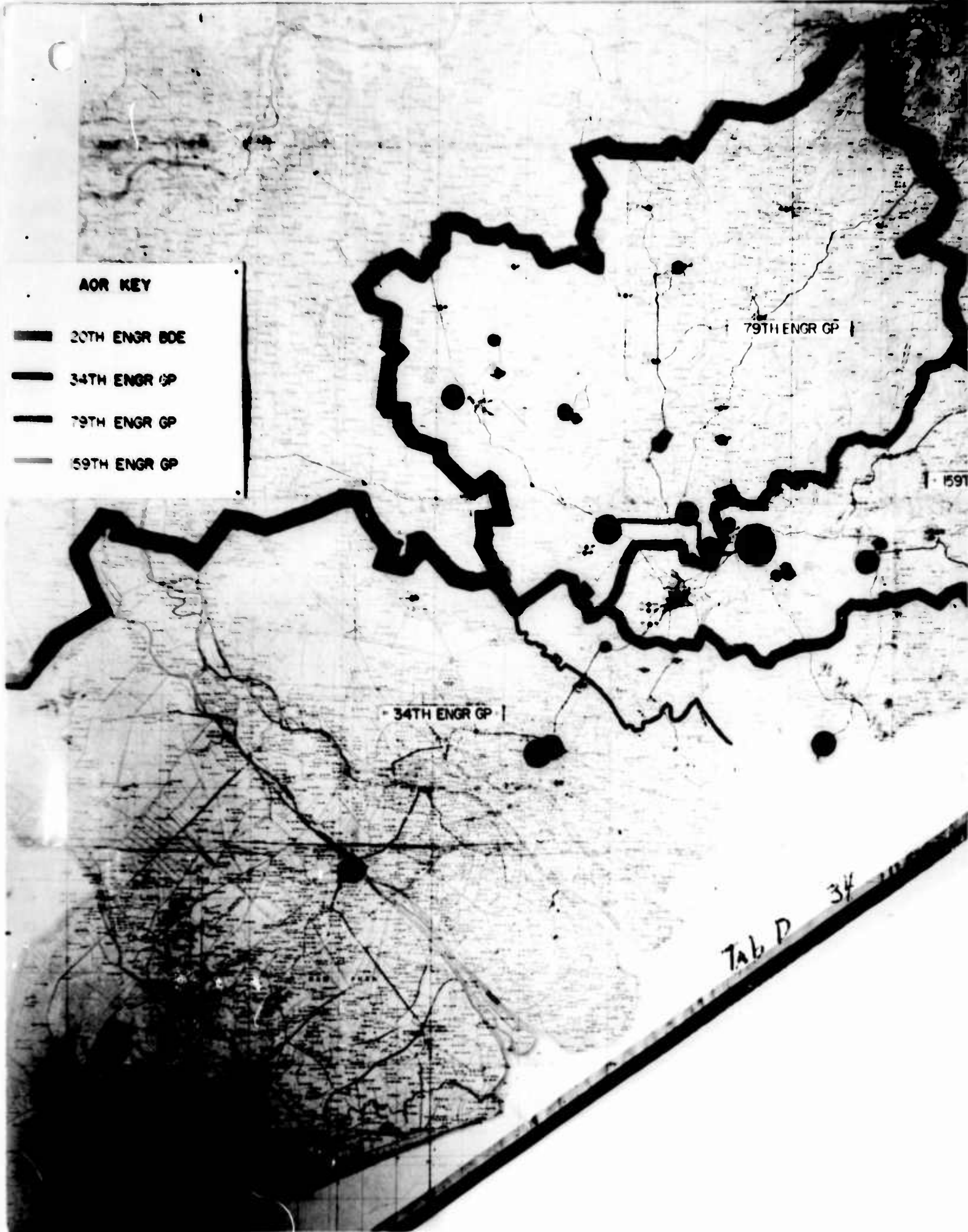
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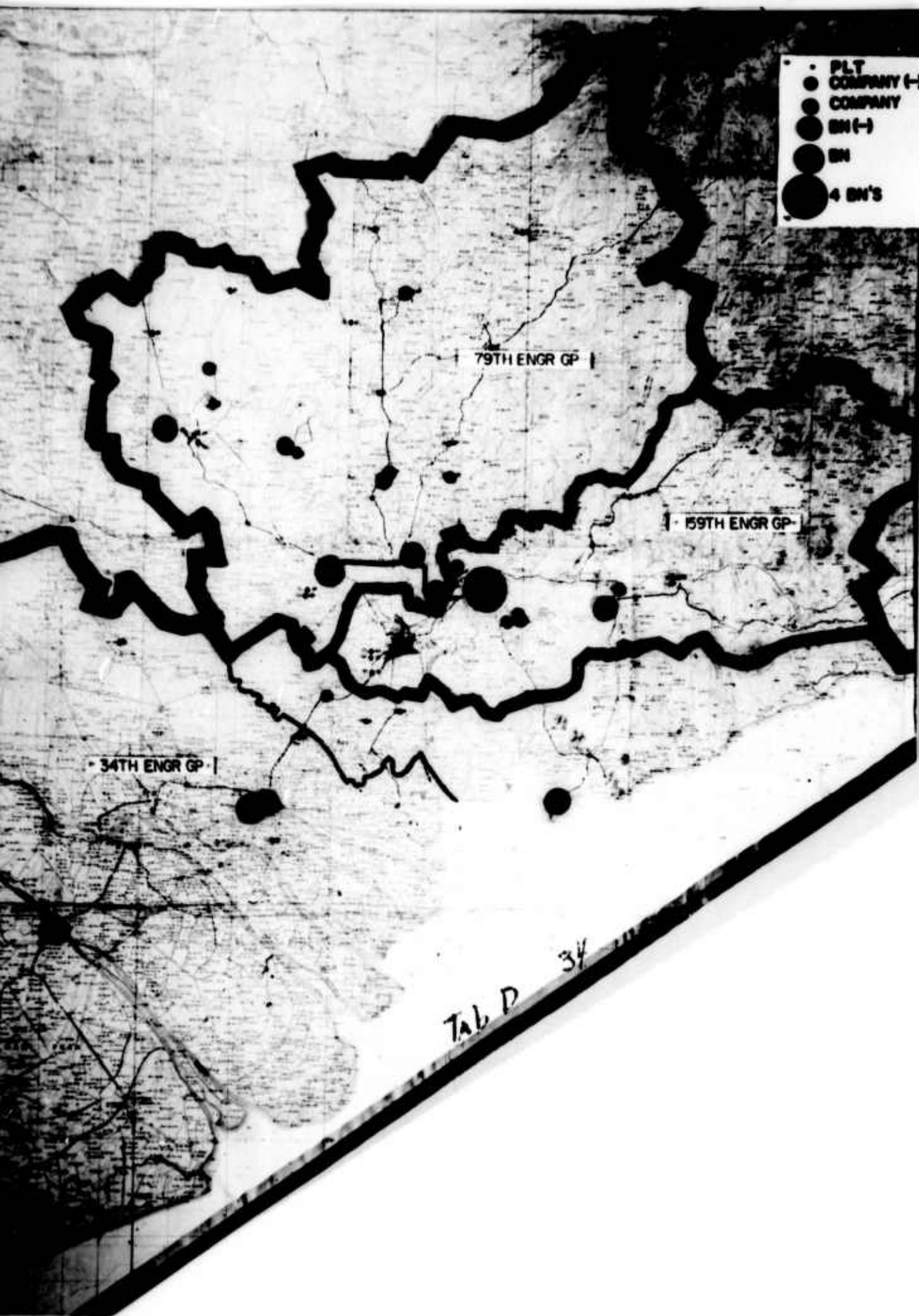
*Only if required

Request should carry an appropriate classification if applicable

AOR KEY

- 20TH ENGR BDE
- 34TH ENGR GP
- 79TH ENGR GP
- 59TH ENGR GP







20th ENGR. BDE.

COMMANDERS GUIDE

to LAND CLEARING



FC

COMMANDERS GUIDE TO LAND CLEARING

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DEPARTMENT OF THE ARMY
HEADQUARTERS, 20TH ENGINEER BRIGADE
APO San Francisco 96491

COMMANDERS GUIDE TO LAND CLEARING

SECTION I - GENERAL

1. Purpose: This publication is provided to assist the tactical commander in the planning and conduct of land clearing operations assigned to his unit.
2. The 20TH ENGINEER BRIGADE has two organic land clearing teams (the 27th LCT and the 86th LCT) which are available to support II FIELD FORCE VIETNAM and its CFCON units. The teams are not self supporting and must be augmented with command, control, administrative, supply, and maintenance personnel and equipment. Each land clearing team consists of 30 each D7E dozers with Rome Plow blades.
3. During the period 1 August 1967 thru 5 August 1968, 20TH ENGINEER BRIGADE land clearing units have cleared more than 120,000 acres of jungle in the III CORPS TACTICAL ZONE. This experience and the resulting lessons learned, after action reports, and association with tactical unit commanders have resulted in this printing of the Commanders Guide to Land Clearing.
4. Any comments or recommendations regarding the contents of this land clearing guide are welcome and should be addressed to the undersigned, (ATTN: AVBL-OS).

Curtis Chapman

CURTIS CHAPMAN
BG, USA
Commanding

SECTION II - ORGANIZATION

1. The land clearing team is organized under MTOE 5-36E and augmented by additional personnel and equipment. The team may be attached to a combat engineer company (minus) or a land clearing task force (LCTF) may be formed for clearing missions with the land clearing team as its nucleus. The following is a typical organization:

a. Headquarters section: CO, XO, 1st Sgt, Supply SGT, Rear Element NCO, Company Clerk, Supply Clerk and two medics.

b. Communications section: One communications SGT and three radio operators.

c. Maintenance section: One warrant officer, one motor SGT, three maintenance team leaders, two contact truck operators, two welders, two fuel tank operators, five ordnance mechanics, eighteen engineer mechanics and two parts clerks.

d. Land clearing section: One section leader, a lieutenant, one section SGT, three cutting team leaders, three assistant cutting team leaders, and sixty dozer operators divided into three teams of twenty operators each.

2. The LCTF leaves a rear detachment in its base camp consisting of the XO, Supply SGT, rear Element NCO, Company Clerk, Supply Clerk and Parts Clerk.

3. The teams organization is shown in Figure #1.

4. Normal equipment density of the LCTF is as follows:

a. D7E Tractor	30 ea (normally with 6 ea bull blades and 24 row plows).
b. Low-beds w/tractor	10 ea
c. Disc Harrow	9 ea
d. Air compressor, 250 cfm	4 ea
e. M548 Track	7 ea
f. 2½ ton fuel tanker	2 ea
g. ½ ton truck	1 ea
h. ¾ ton contact truck	3 ea
i. ¾ ton cargo truck	1 ea

5. Required equipment not authorized the LCTF, but necessary for effective operations is as follows:

SECTION II - ORGANIZATION (continued)

- a. APC, with radio 1 ea
- b. Wrecker, 5 ton 1 ea
- c. An-Prc 25 radio 8 ea
- d. LOH 1 ea (2 hours / day minimum)
- e. VTR 1 ea (On an as needed basis only for equipment recovery and maintenance).

6. The LCTF operates best as an entity. The land clearing element should not be subdivided into more than 3 separate teams of 8 to 10 dozers each. The LCTF should never be split up between 2 or more land clearing operations, but must be employed together. Otherwise, maintenance, command, and control augmentations cannot provide the necessary support. If clearing teams are employed at widely separated cutting sites on the same operation, additional maintenance support must be obtained for that part of the team separated from the main body. This support should include as a minimum:

- a. Lifting capability such as a wrecker, VTR, or 3 ton crane.
- b. Contact truck or its equivalent.
- c. Additional air or ground transport to insure command and control and a steady flow of repair parts.

SECTION III - OPERATIONS

1. Responsibilities:

a. The tactical commander has overall responsibility for land clearing operations. He is assigned the mission, and the 20TH ENGINEER BRIGADE land clearing task force is placed in direct support for the duration of the operation. The following are the normal responsibilities of the tactical commander:

(1) In coordination with the CO, LCTF, designation of the area to be cut each day. Care will be taken that the area is not too large so that the plows can complete their work by 1600 hours. This will permit timely return to base camp and maintenance.

(2) Provision of adequate aircraft support to the LCTF commander to insure cutting of accurate well defined areas, thus reducing unnecessary effort. A minimum of two hours is needed when the initial trace of a new cut is being made. Additional air time should be provided during the morning for adequate control of the cutting. One half hour of air time should also be provided around 1600 hours each day to estimate the acreage cut during the day and recon of the next days cut.

(3) Provision of adequate security for the cutting teams and the maintenance personnel in base camps, during movement, and during cutting.

(4) Insuring that at least two hours of daylight is allocated for maintenance at the end of each day.

b. The commanding officer of the LCTF is responsible for:

(1) Coordinating the selection of a cutting area with the senior tactical commander.

(2) Organizing the cutting of the area designated by the senior tactical commander in accordance with the security and cutting procedures outlined in this guide.

(3) Insuring that adequate security is provided for the land clearing element. If at any time there is in his opinion inadequate security, he has the responsibility to withdraw the plows to a secure area and immediately notify the commander of the tactical unit in charge of the operation.

(4) Insuring that proper operating procedures are followed by the land clearing elements.

(5) Providing technical advice and assistance to the tactical commander, particularly as to the capability of the task force to cut under the existing terrain, trafficability, weather, and security conditions.

2. Security:

a. Security of a land clearing task force is most important to the success of a land clearing operation. The VC recognize the effect the

SECTION III - OPERATIONS (continued)

Rome plow has on his operations and is willing to sacrifice his men through daring attempts to disable or destroy land clearing equipment. The Security force must be aggressive, alert, and responsive at all times. "Charlie" will do all he can to disrupt an operation, especially should any laxity be shown by the security elements.

b. Adequate security for large area cutting operations can be provided only by mechanized infantry and armor units. Normal security procedures are outlined below.

(1) The size of the security force used to secure the land clearing team will also be governed by the tactical situation. Normally an armored cavalry troop reinforced by a tank platoon will be assigned the mission.

(2) A secure area will be established immediately adjacent to each cutting area for use as a maintenance base.

(3) The security element commander should defer decisions on cutting procedures to the cutting team commander, except in cases of tactical emergency.

c. Infantry foot troops may be used as security when the land clearing team is engaged in strip cutting. If used, there must be a sufficiently large force to outpost and secure the perimeter of the entire area being cut. However, mechanized infantry is preferred because of its maneuverability and additional firepower which is a strong deterrent to the VC.

d. Tips for the tactical commander:

(1) Artillery preparation of the cutting area prior to the beginning of cutting is advisable.

(2) Harassing fire, directed at night into the area to be cut the next day, effectively discourages ambushes, mine laying parties, etc.

(3) Ambush patrols and reconnaissance by fire will effectively discover pockets of enemy resistance and discourage sniper and RPG attacks.

(4) Security elements and Rome plows should never use the same route to and from the cut, in order to counter enemy mining activities.

(5) Plows should never move between the cut and the base camp without proper security escort.

(6) The most effective method for moving to the cut is to have the entire column led by a tank followed by a bull blade. The bull blade can clear a path for the plows and APC's and will also detonate any mines encountered.

(7) Plow operators and maintenance personnel have the final determination as to the serviceability of their machines. The operators are under standing orders to move to a secure area if their tractor overheats or is experiencing mechanical difficulty.

SECTION III - OPERATIONS (continued)

(8) An immobilized plow means trouble; the security should immediately investigate. The plow operators will stop their plows only if they have experienced mechanical difficulties that prevent their moving to a secure area, they are in contact with the enemy, or they have discovered a dud round, booby trap or enemy mine.

(9) Dud rounds should be marked immediately by the security elements to prevent other plows and vehicles from running over them.

(10) Plows should never be moved at night.

(11) No security vehicle should ever be closer than 40 meters to a plow while cutting or moving. This will preclude accidental injury to personnel and vehicles should the tractor or plow blade detonate an enemy mine or booby trap or should a large tree fall in the direction of other vehicles. Personnel should never move around on the ground near plows when they are cutting.

(12) Once a base camp has been cleared, it should be occupied immediately. Unoccupied base camps have in the past been mined prior to the arrival of the occupying forces.

(13) Effective command and control of the land clearing operation can be accomplished only if the tactical commander provides the ICTF platoon leader with an APC with radio.

(14) Helicopter landing zones should be cleared by the ICTF every 300 meters.

(15) Areas should not be windrowed unless absolutely necessary, such as route clearing or for LZ's. An area requires 2 to 3 times the effort and time when windrowing is involved than clearing without windrowing. All windrowing should be accomplished with bull blades rather than romo plows.

3. Cutting procedures:

a. Types of cut: Jungle clearing is normally accomplished utilizing one of three techniques.

(1) Block cutting: This technique is utilized when clearing large areas of jungle. An area of approximately 300 acres is chosen and organized into three cutting sections of approximately 100 acres each and assigned to each of the three cutting teams. The lead plow of each team first clears a trace around the area to be cut. Jungle is cleared by the plows and security element moving in a counter-clockwise direction. Cutting can also be accomplished when the security vehicles are posted around the perimeter of the cut. When the cut is nearly completed, the "lead" plow

SECTION III - OPERATIONS (continued)

of each team will be pulled from the cut to begin a new trace. Approximately four tractors will be left to complete the cut, while the other six move to the new area. Block cutting is illustrated in Figure 2.

(2) Strip cutting: This technique is used when cutting along roads and trails or when clearing landing zones or surveillance lanes. If the lane is wide enough (200 meters or greater). A technique similar to block cutting may be used on an elongated rectangle, crossing the trail when required although care should be taken to insure that drainage ditches and road shoulders are not damaged in the process. In narrower cuts, one team cutting abreast is the most efficient method of clearing.

(3) Clearing fields of fire: This technique is utilized in clearing base camps and fields of fire. The team starts at the camp center and cuts outward moving in a counter-clockwise direction to the outer extremities of the NDP. The windrows should extend radially outward from the center of the NDP. Clearing fields of fire is illustrated in Figure 3.

b. Cultivated rubber: The normal technique used to cut cultivated rubber utilized an anchor chain, towed by two dozers with a third "chase" dozer following behind as illustrated in Figure 4. The chain uproots 2 or more rows of trees, (depending on size) on each pass. The chase dozer follows at the apex of the chain and clears the chain should it get hung up on a stump or extremely large tree. Chains cannot be well utilized in light undergrowth as they will only push down the light undergrowth leaving it to spring back up.

c. Acreage estimates: The following are acreage estimates for a clearing team of 25 tractors for various type cuts, under optimum conditions of security and level, dry terrain, excluding windrowing.

(1) Block cutting:

(a) Light jungle	250 acres/day
(b) Medium jungle	200 acres/day
(c) Heavy jungle	150 acres/day

(2) Strip cutting

(a) Light jungle	200 acres/day
(b) Medium jungle	150 acres/day
(c) Heavy jungle	100 acres/day

(3) Cultivated rubber: 50 acres/day/team of 3 plows

d. Large trees are often left standing as they provide less cover to the enemy in a vertical position. Cutting large trees with some plows is also inefficient because of the extra splitting effort required.

4. Organization of the cutting area.

a. Initial move out to the designated cutting area will be accomplished with the security element in the lead. Normally an initial preparation by fire of the cutting area is conducted.

SECTION III - OPERATIONS (continued)

b. On arrival in the cutting area, a secure area will immediately be established for the use of disabled or overheating plows. An air compressor, water trailer and a contact vehicle will normally be placed in the secure area.

c. Immediately after arriving at the cutting area, the security element and the cutting team, led by a previously designated "lead plow", will move out to begin cutting an initial trace around the area. This initial cut will be controlled only by the platoon leader of the cutting platoon from an aircraft.

d. The CO of the security force and CO of the LCTF will plan and coordinate the cut so as to have an area big enough to keep one team busy one day, yet small enough so that no uncut islands will be left in the area at the end of the day. Such uncut islands are open invitations to the enemy for mines or ambushes the next day.

e. In the event a cut will be finished early, the CO of the LCTF will notify the tactical commander a minimum of one hour before completion to insure that an aircraft is made available to the platoon leader for starting a new cut.

f. All cutting should be completed at 1600 hours to allow time for maintenance of the plows at the base camp. A minimum of two hours of daylight maintenance is required.

g. Return to the base camp will be accomplished in the same manner as the move out, with security leading. The return will be made by a different route from the one taken to the cut.

h. A plow will be halted when it begins to overheat. Under no circumstances will the temperature gages be allowed to register in the black range marked on the face of the gauge.

i. Base camps and NDP's will be sited so that plows will be required to do a minimum of walking. Under no circumstances will plows be required to walk more than a distance of four kilometers from the cut to the base camp. All walking must be done in first gear. Plows cannot move faster than three miles per hour.

j. Plows should not work too close to one another. Maximum cutting is achieved when one plow is not hindered by another slower cutting plow.

k. Plows should not be operated in 3rd gear, as excessive speed causes vibrations which damage cab assemblies.

l. Plow blades are "floated" (ie. kept as close to the ground as possible) when cutting. This leaves a minimum of stump and also detonates mines with the blade instead of the track.

m. Plows will not be used as recovery vehicles. A VTR will be provided by the tactical commander for this purpose.

SECTION III - OPERATIONS (continued)

5. Organization of base camp/night defensive positions.

a. The LCTF requires a circular area of 200 meters minimum diameter for its base camp. A hard, dry maintenance area should be included, whenever possible.

b. The following procedures should be followed in constructing a night defensive position or base camp.

(1) Under no circumstances will other cutting begin before cutting for the base camp area is complete.

(2) Fields of fire around the base camp will be cut by the LCTF under the direction of the tactical commander.

(3) Under no circumstances will some plow blades be used to dig in vehicles and dig bunkers. The blade is designed exclusively to cut trees and brush. Dozers with bull blades are part of a LCTF and are available for this work.

(4) The LCTF requires three bull blades to prepare its area. Bull blades can then be made available to the tactical commander to assist the supporting combat engineer unit in preparing the NDP.

(5) Base camp construction should stop for maintenance of dozers at 1630 hours.

(6) Under no circumstances will dozers be worked after the hours of darkness, unless the tactical situation and condition of the defenses of the camp dictate otherwise..

(7) No dozers will be left behind for base camp construction once the base camp is occupied and cutting begins. Any further base camp construction is the responsibility of the supporting combat engineer unit.

SECTION IV - MAINTENANCE

1. The LCTF will maintain all machines assigned to the unit.
2. Third Echelon Contact Team: A third echelon contact team directed by a senior engineer mechanic will accompany the LCTF to the field. This team will be equipped with a 2½ ton truck and a 3/4 ton contact truck. The team will have a complete set of tools and all portable test instruments necessary for third echelon maintenance. The team will be responsible for:
 - a. Performing all possible third echelon maintenance in the field in as timely a manner as possible.
 - b. Coordinating the ordering and delivery of all third echelon repair parts to the field location.
 - c. Coordinating with the CO of the LCTF and third echelon rear elements on the decision of evacuate machines to the third echelon rear elements.
 - d. If equipment is to be evacuated to direct support maintenance located in a rear base camp, the LCTF will submit a DA Form 2407 to that shop. In general, if lift capability is not available or estimated work exceeds 72 hours, the tractor will be evacuated to a base camp shop.
3. Procedures.
 - a. Each day one tractor from each team will be held in the maintenance area. These machines will have all first and second echelon maintenance performed, all fluid changes necessary and lubrications, belly pans cleaned out, radiator flushed, and all required periodic maintenance checks performed.
 - b. Each evening a minimum of two hours of daylight maintenance will be performed. During this time, all first echelon maintenance will be performed, to include sharpening of each blade.
 - c. Maintenance problems not resolvable at organizational or DSU level will immediately be brought to the attention of the Group Maintenance Officer.
4. Stand down
 - a. For every 60 days of operation, a minimum of 10 days of stand down is required, exclusive of travel time.
 - b. Stand downs should be conducted at the home station base camp of the LCTF.
 - c. Prior to stand down the maintenance officer should determine, as near as possible, what repair parts will be required to successfully complete the maintenance portion of the stand down in the allotted time.

SECTION IV - MAINTENANCE (continued)

Subject repair parts list should be turned over to the Group MRE not less than 7 days prior to stand down. The MRE should insure that all possible efforts are expended to expedite receipt of needed repair parts.

d. The LCTF maintenance officer will insure that an adequate site for maintenance repairs and needed equipment is available to accomplish all repairs.

SECTION V - LOGISTICS

1. The LCTF depends on the tactical commanders security elements for logistical support while in the field. This logistical support will include:

a. Meals and messing facilities to include meals served in insulated food containers or late meals served after all maintenance has been performed on dozers.

b. Minimum daily POL and water requirements are:

- | | |
|----------------------|--------------|
| (1) Potable water | 400 gallons |
| (2) Nonpotable water | 400 gallons |
| (3) Diesel fuel | 2000 gallons |
| (4) Gasoline | 60 gallons |

c. Ice and Sundry packs. Quantities sufficient for the number of men in the field and comparable to that allowed for the field units of the security elements are required.

d. Air transportation. When the LCTF is moving from an extremely muddy NDP, the following equipment should be airlifted to preclude damage:

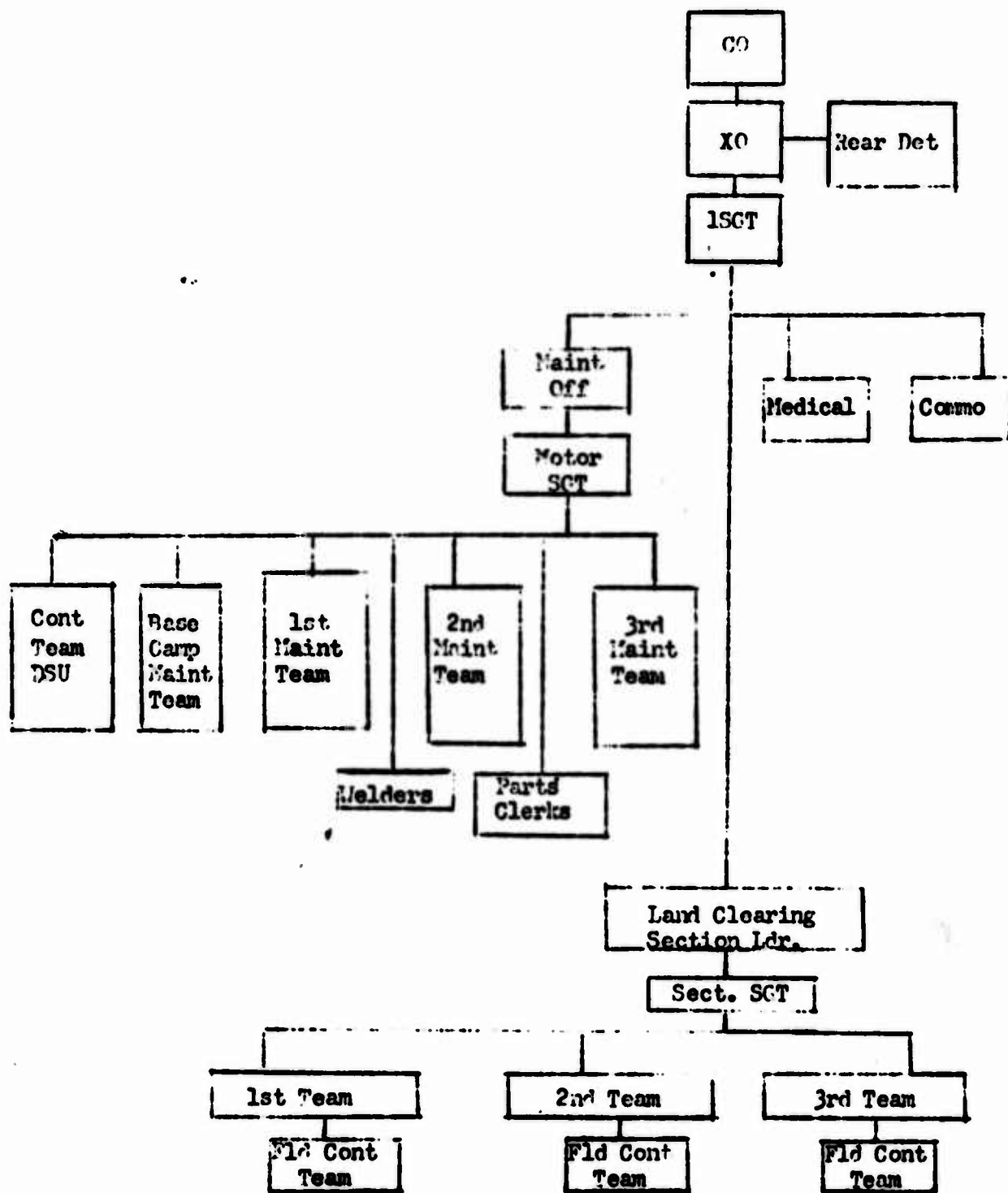
- (1) Contact trucks
- (2) Arc welders
- (3) Water trailers
- (4) Lubricator
- (5) Extra blades, cabs, C frames, etc.

e. Other logistical support. Lubricating oil, grease, spare parts, and other small items will be provided by the LCTF's parent unit.

f. Ammunition resupply will be drawn from the supporting security element.

SECTION VI - SIGNAL

1. The LCTF has the organic capability to monitor only two radio nets; the LCTF net and one other net designated by the tactical commander.
2. During cutting operations, each cutting team will use the net of the security element working with them.
3. Direction of the cutting teams will take priority over all traffic on the net, except in the event of a tactical emergency.
4. The LCTF will maintain communications on its assigned nets twenty-four hours a day.
5. Reports will be submitted only to the tactical commander and the S-3 of the parent unit of the LCTF. Other agencies desiring information will obtain it from these sources.



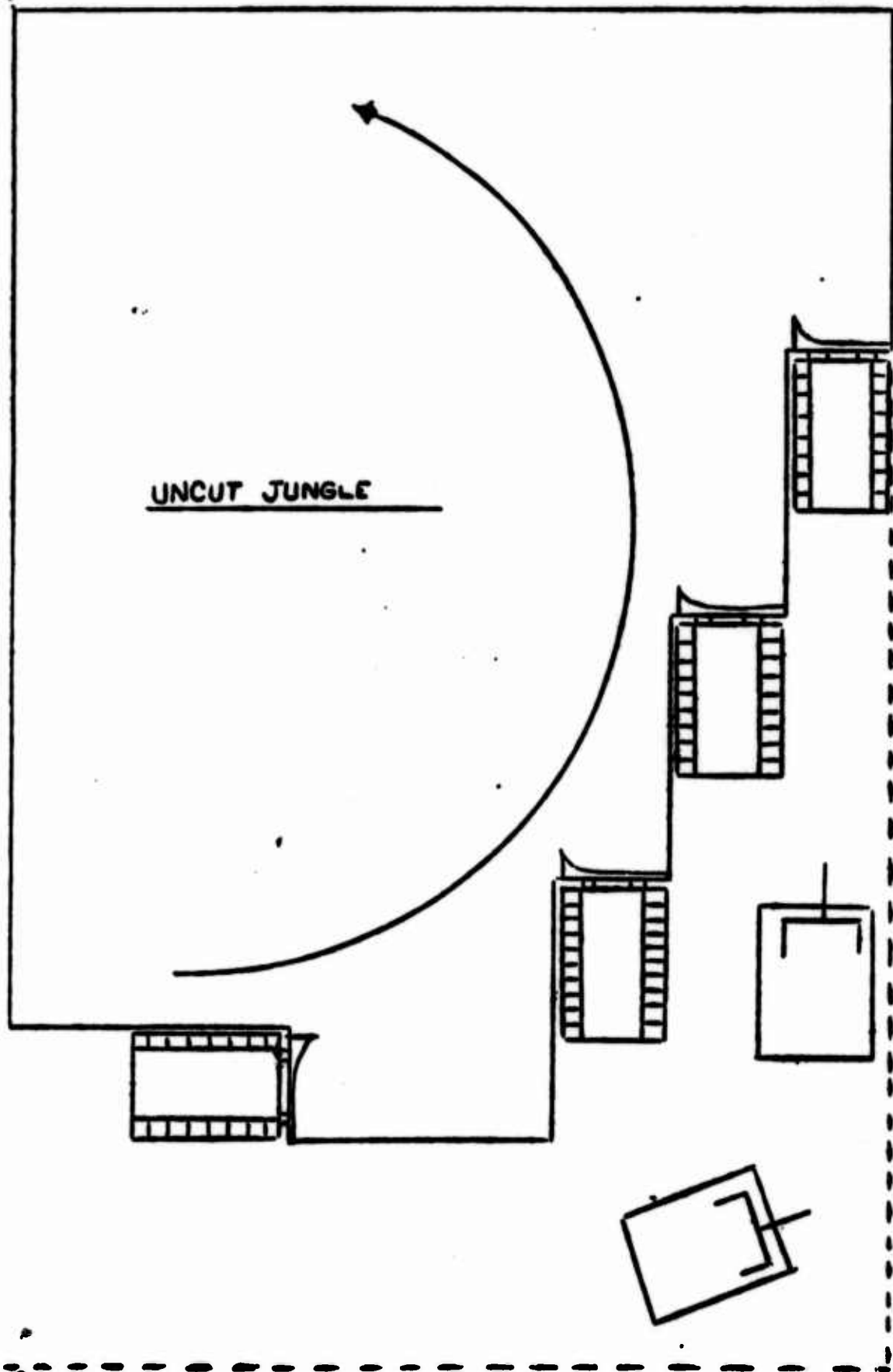


fig. 2

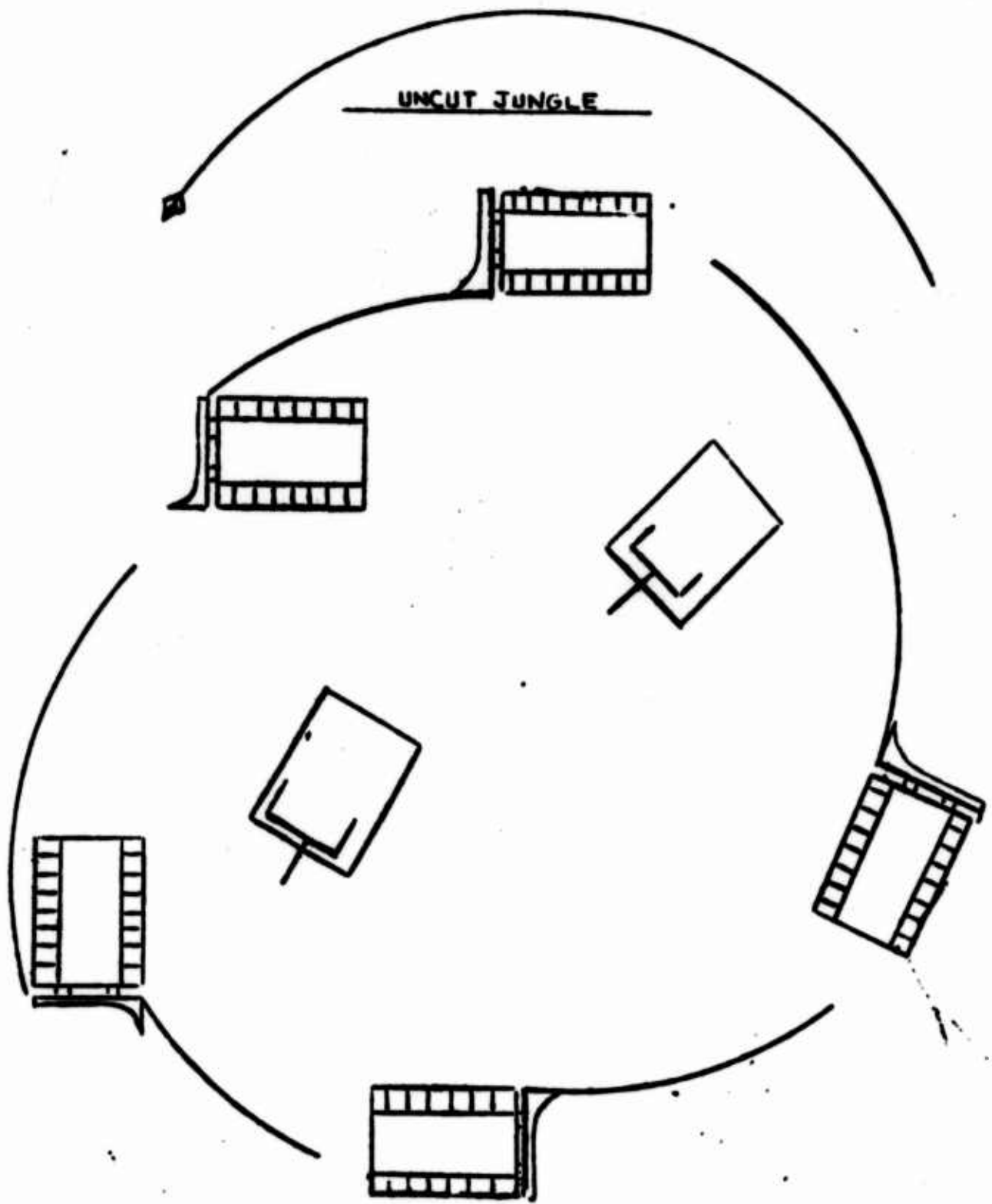


fig. 3

UNCUT JUNGLE

16

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CULTIVATED RUBBER

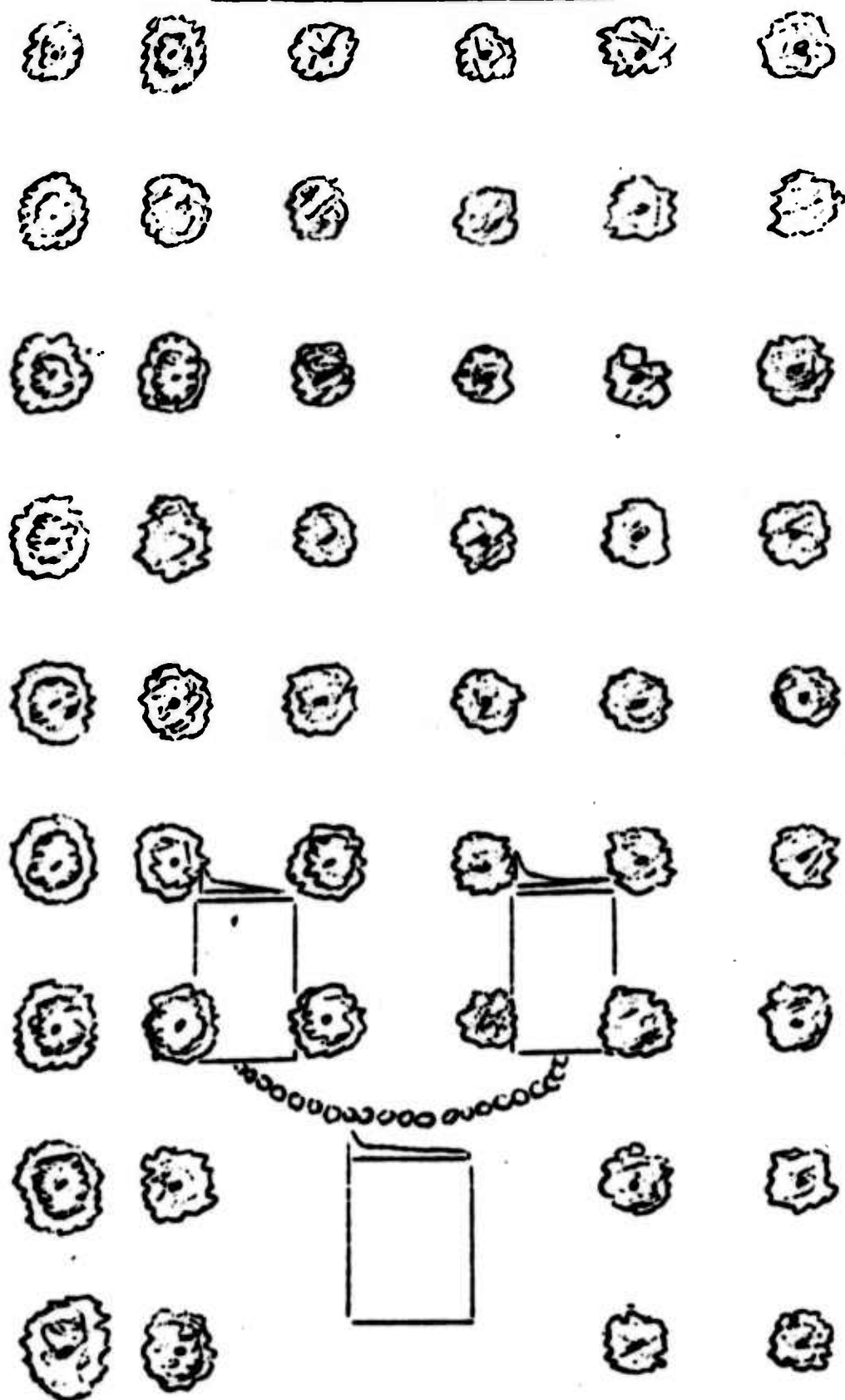


fig. 4

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DEPARTMENT OF THE ARMY
HEADQUARTERS, 20TH ENGINEER BRIGADE
APO SAN FRANCISCO 96491

AVBI-BC

7 December 1967

SUBJECT: Indoctrination of Young Noncommissioned Officers

1. Throughout our Army's history, particularly in times of conflicts, many young men have been promoted to levels of responsibility seemingly out of keeping with the experience and maturity that is desirable in military leaders. Among the senior officers of our Army today are some who were commanders of companies and battalions at tender ages during World War II. We know that young men can meet the challenges of leadership and bring to the task exceptional strengths found only in youth. It is obvious that there is no justification for faulting today's young NCO's on their youth alone. There is, however, a necessity to recognize the challenge to our own leadership to accelerate the acquisition of judgment, maturity, and understanding by these young NCO's.
2. My immediate concern is with an apparent tendency of some of our young NCO's to shed their role as military leaders with the sounding of retreat. Insufficient leadership by NCO's in many incidents involving the lower grades, and actual NCO involvement in incidents discreditable to themselves and the Army, point up the need for corrective action.
3. Army leaders are responsible 24 hours of each day for everyone junior to them. In too many instances this has been forgotten. I am sure that the NCO's are aware of this responsibility and the authority that accompanies it, so I wonder why they do not act when action is needed. Are our young NCO's confident we will back their exercise of leadership off-duty? Do policies encourage the exercise of such leadership? Or do NCO's believe that an attempt to deter an off-duty soldier headed for trouble will result in a Monday morning quarterback review of judgment or be met with indifference? Do our young NCO's thoroughly understand the necessity of setting an example? Setting a good example is a fundamental trait of the good leader. Do we encourage and insist upon it?

Tab G

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AVBI-BC

SUBJECT: Indoctrination of Young Noncommissioned Officers 7 December 1968

4. A review of the guidance and policies that bear on this subject should be made at each level of command. We need an aggressive program to instill a 24-hour sense of responsibility in our NCO's, stressing:

- a. The necessity of example as a trait and mark of fitness for leadership.
- b. The leadership responsibilities of NCO's on-duty or off-duty, on-post or off-post, in uniform or in mufti, and to subordinates of their own and of other units.
- c. A leadership climate that encourages an NCO to take charge and to guide soldiers away from impending trouble.

5. I enjoin you to continue to develop and use effective means to assure complete understanding of the obligations that accompany NCO rank and to encourage NCO's to act when action is indicated day or night, on-duty or off-duty.

CURTIS CHAPMAN
Brigadier General, USA
Commanding

20TH ENGINEER BRIGADE
UNIT AWARDS

22 October 1968

(MERITORIOUS UNIT COMMENDATION UNLESS OTHERWISE NOTED)

20th Engineer Brigade

(Awarded)

HHC, 20th Engineer Brigade

(Pending)

HHC, 20th Engineer Brigade (1st Oak Leaf Cluster)

34th Engineer Group

(Awarded)

69th Engineer Battalion (VALOROUS UNIT CITATION)

(Pending)

HHC, 34th Engineer Group

79th Engineer Group

(Awarded)

HHC, 79th Engineer Group

66th Engineer Company

100th Engineer Company

362d Engineer Company

588th Engineer Battalion

168th Engineer Battalion

554th Engineer Battalion

500th Engineer Company

(Pending)

168th Engineer Battalion (1st Oak Leaf Cluster)

HHC, 79th Engineer Group (1st Oak Leaf Cluster)

34th Engineer Battalion

66th Engineer Company (1st Oak Leaf Cluster)

159th Engineer Group

(Awarded)

HHC, 159th Engineer Group

46th Engineer Battalion (3d Oak Leaf Cluster)

62d Engineer Battalion

169th Engineer Battalion (1st Oak Leaf Cluster)

103d Engineer Company

92d Engineer Battalion

(Pending)

62d Engineer Battalion (1st Oak Leaf Cluster)

169th Engineer Battalion (2d Oak Leaf Cluster)

41st Engineer Company (PRESIDENTIAL UNIT CITATION)

Tab H

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UNCLASSIFIED

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